State Water Resources Control Board Meeting July 10, 2018

Agenda Item # 3

Consideration to Approve a Basin Plan Amendment for the Control of Pyrethroid Pesticide Discharges

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Presentation Overview

I. Amendment Summary

II. Public Comments and Responses

III. Staff Recommendation

Pyrethroids in Central Valley and Delta

- Important for urban and ag pest control
- Less toxic than other pesticides
- Impairments in urban & ag streams

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- Impairments in urban & ag streams
- Delta Pelagic Organism Decline(POD)

- Stormwater, agriculture & wastewater

Pyrethroids in Central Valley and Delta

- Delta Stewardship Council Delta Plan & RB5 (2014) Delta Strategic Workplan

Project Goal & Objectives

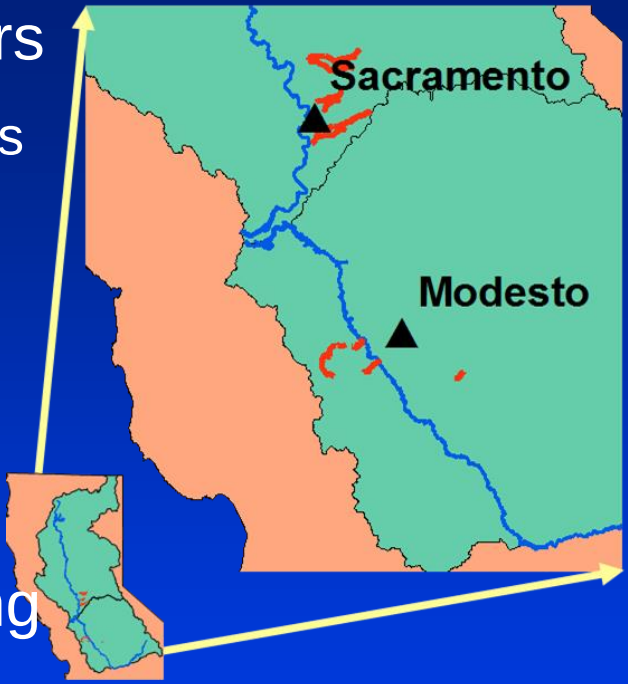
- Overall Goal
  - Establish clear requirements for the control of pyrethroids that provide reasonable protection of beneficial uses
- Primary Objectives
  - Concentration goals that provide reasonable protection of beneficial uses
  - Address existing impairments
  - Reasonable and attainable implementation provisions

Project Goal & Objectives

- Additional Objectives
  - Address future impairments
  - Address alternative/replacement pesticides
- A phased and comprehensive program that:
  - **Significantly reduces pyrethroid levels**
  - Includes monitoring and data gathering to inform the Board's future actions
  - Avoids unintended regulatory consequences

Regulatory Components

1. Addressing impaired waters
   - TMDLs in 9 urban water bodies
   - Category 4b demonstrations for 5 ag water bodies
2. Basin-wide conditional prohibition of discharge
3. Monitoring & data gathering
4. Coordination with and recommendations for DPR and USEPA

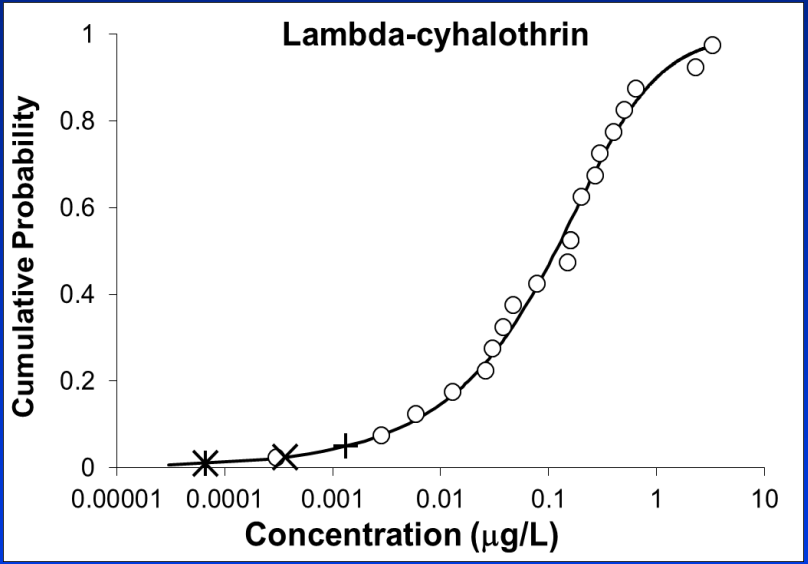


Conditional Prohibition

- If discharges exceed prohibition **trigger**:
  - Discharge is prohibited, or
  - Dischargers must implement management practices to reduce pyrethroid discharges
- Management practices must be identified in a management plan
- Prohibition in effect 3 years after effective date

Concentration Goals

- **5th percentile UC Davis criteria**
  - Bioavailability
  - Additive toxicity 6 pyrethroids
- TMDL targets
- Prohibition triggers
  - at point of discharge
  - all discharges to water bodies with WARM/COLD beneficial uses



Requirements

- Monitoring
  - Pyrethroid concentrations
  - DOC and POC (for bioavailability calculations)
  - Toxicity testing with *Hyalella azteca* in water and/or sediment
  - Collaborative monitoring
- Develop management plans
- Implement management practices

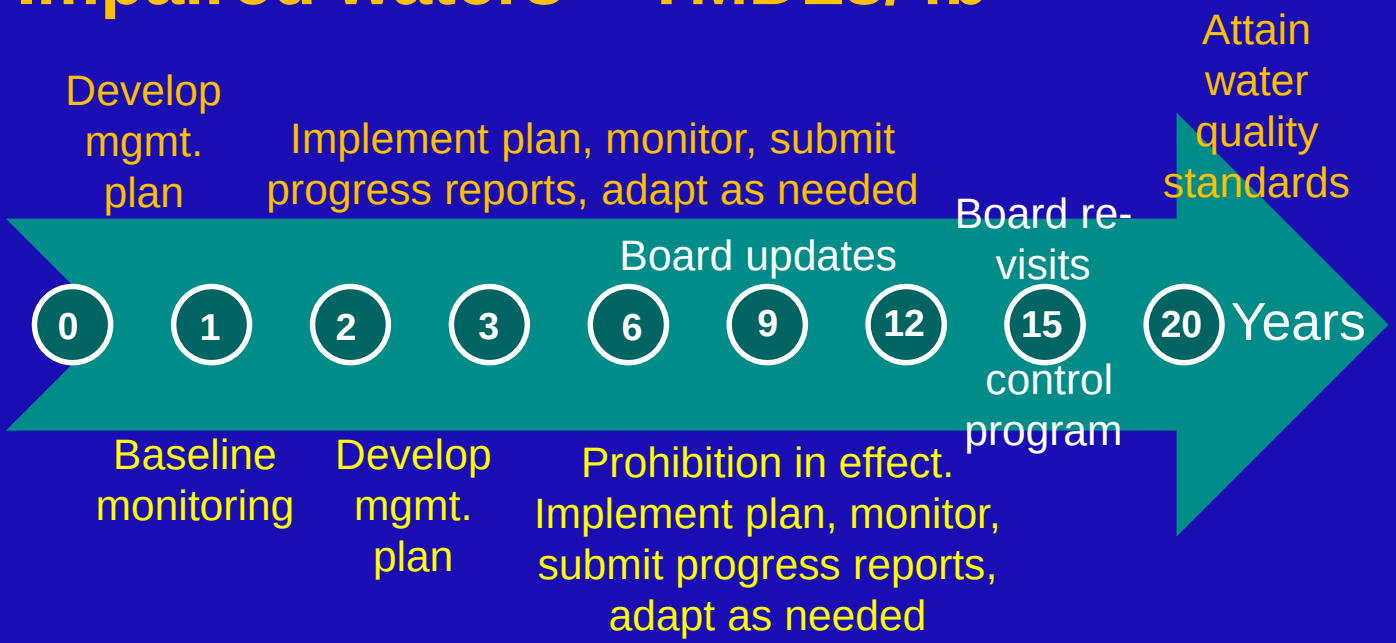
Requirements

- Obligations for Regional Board staff
  - Review plans & data
  - Reporting to the Board
  - Coordination with DPR and EPA
  - Pyrethroid Research Plan

- Recommendations for DPR and EPA

Regulatory Timeline

Impaired waters – TMDLs/4b



Conditional Prohibition

Development of the Amendment

- CEQA scoping – 2012
- 9 Stakeholder Meetings 2014-16
- 3 Board Workshops 2016-17
- 2 Regional Board hearings in 2017
- Independent Scientific Peer Review
- CEQA, cost & antidegradation analysis
- Adopted CV Water Board 8 June 2017

Public Written Comments

Comment Period: Oct 3 – Nov 2 , 2017

- Central Valley Clean Water Association & Ca. Association of Sanitation Agencies (CVCWA & CASA)
- Mosquito and Vector Control Assoc. of Ca. (MVCAC)
- Pacific Coast Federation of Fishermen's Associations & Institute of Fisheries Resources (PCFFA & IFR)
- Sacramento Regional County Sanitation District (SRCSD)
- Pyrethroid Working Group (PWG)
- UC Berkeley (UCB)
- Western Plant Health Association (WPHA)

Public Written Comments

Supportive Comments

Wastewater dischargers (CVCWA & CASA, SCRSD), the Pyrethroid Working Group & Western Plant Health Association

- Appreciate stakeholder process
- Support the regulatory approach,
  - bioavailable concentrations
  - 5th percentile

Wastewater Dischargers (CVCWA & CASA, SCRSD)

- Support that triggers shall not be used as effluent limits

Public Written Comments

Critical Comments

Wastewater Dischargers (CVCWA & CASA, SCRSD)

1. Prohibition should apply to receiving water instead of discharge
2. Lack of reliable commercial lab methods for wastewater matrix. wastewater monitoring should be suspended until there are better lab methods.

Environmental and Fisheries Groups & Researchers (PCFFA & IFR, UCB)

3. Concentration goals not low enough
4. Oppose using bioavailable concentrations
5. Comments and science unsupportive of approach were ignored

Response To Comments

Comment 1 (wastewater dischargers):

Prohibition should apply to receiving water instead of discharge

Response:

Discharge prohibitions most appropriate for discharge concentrations in order to focus source identification and trigger pollution prevention activities.

Response To Comments

Comment 2 (wastewater dischargers):

Lack of reliable commercial lab methods for wastewater matrix. Request wastewater monitoring be suspended until there are better lab methods for wastewater

Response:

Analytical methods are available and improving and it does not make sense to delay initiation of monitoring. Staff is working with ELAP on improvement of analytical methods.

Response To Comments

Comment 3 (Env. and Fisheries & Researchers):

Concentration goals are too high

- *Close to or at levels toxic to Hyalella azteca*
- *Additive effects*
- *Increased toxicity at low temperatures*
- *Potential sediment toxicity*
- *Poor health of Valley & Delta ecosystems.*

Response:

- *Independent scientific peer reviews support 5th percentile*
- *Toxicity testing to confirm the effectiveness*
- *Pyrethroid Research Plan to address concerns about potential effects*

Response To Comments

Comment 4 (Env. and Fisheries & Researchers):

Oppose using bioavailable fraction & default partition coefficients for concentration goals

- Novel approach
- Potential to underestimate toxicity
- Lack of site specific partition coefficients

Response:

- *Most accurate estimate of toxic potential – avoid overregulation*
- *Supported by independent scientific peer review*
- *Toxicity testing to confirm effectiveness*
- *Pyrethroid Research Plan*
  - *RB5 Contract - Partition coefficients in the Valley*

Response To Comments

Comment 5 (Env. and Fisheries & Researchers):
RB5 ignored their comments & ignored science that didn't support their approach.

Response:

- *All comments and concerns have been responded to*
- *All available studies considered*
- *Supported by peer reviewers*
- *Commitment to Pyrethroid Research Plan*

Conclusions

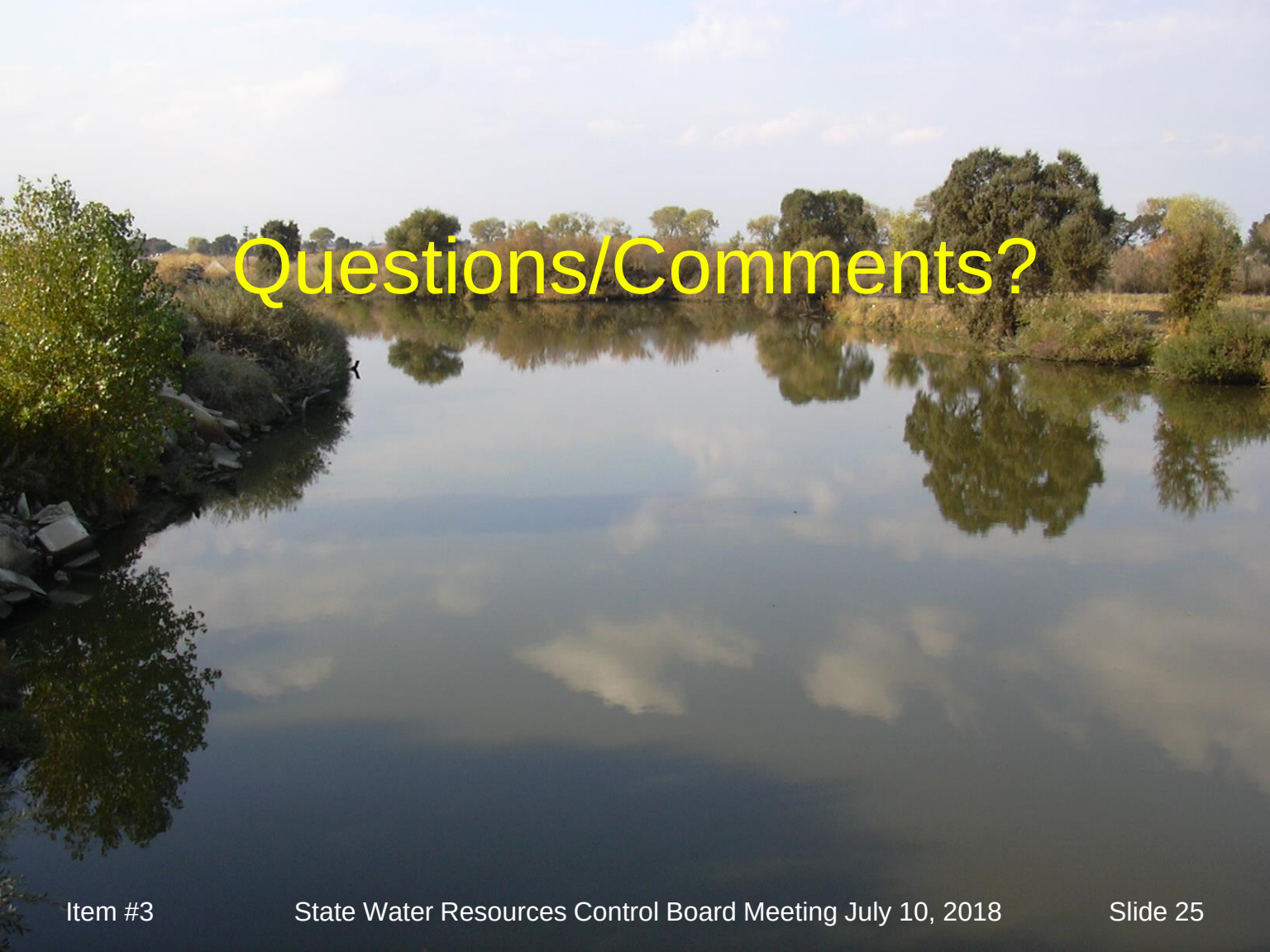
- The Pyrethroid Control Program meets overall goals and objectives
  - Addresses current impairments and framework to prevent future impairments
  - Phased approach with data gathering
  - Reasonable protection while avoiding unintended consequences
  - Research Plan for improving scientific understanding
  - Regular updates to Board
  - Stakeholder input

Staff Recommendation

1. Approve Resolution to Amend Sacramento River and San Joaquin River Basin Plan

2. Authorize submittal to the Office of Administrative Law as approved

3. Authorize submittal of the TMDLs to the U.S. Environmental Protection Agency for approval.


Questions/Comments?

Extra Slides

Environmental Fate

- Strong tendency to bind to surfaces
  - Sediments, suspended particles, dissolved organic matter
- Degradation half-lives
  - Weeks to months for most pyrethroids in sediments
  - **Bifenthrin** is longer, over a year in many cases
- Not known to cause toxic effects up the food chain in animals

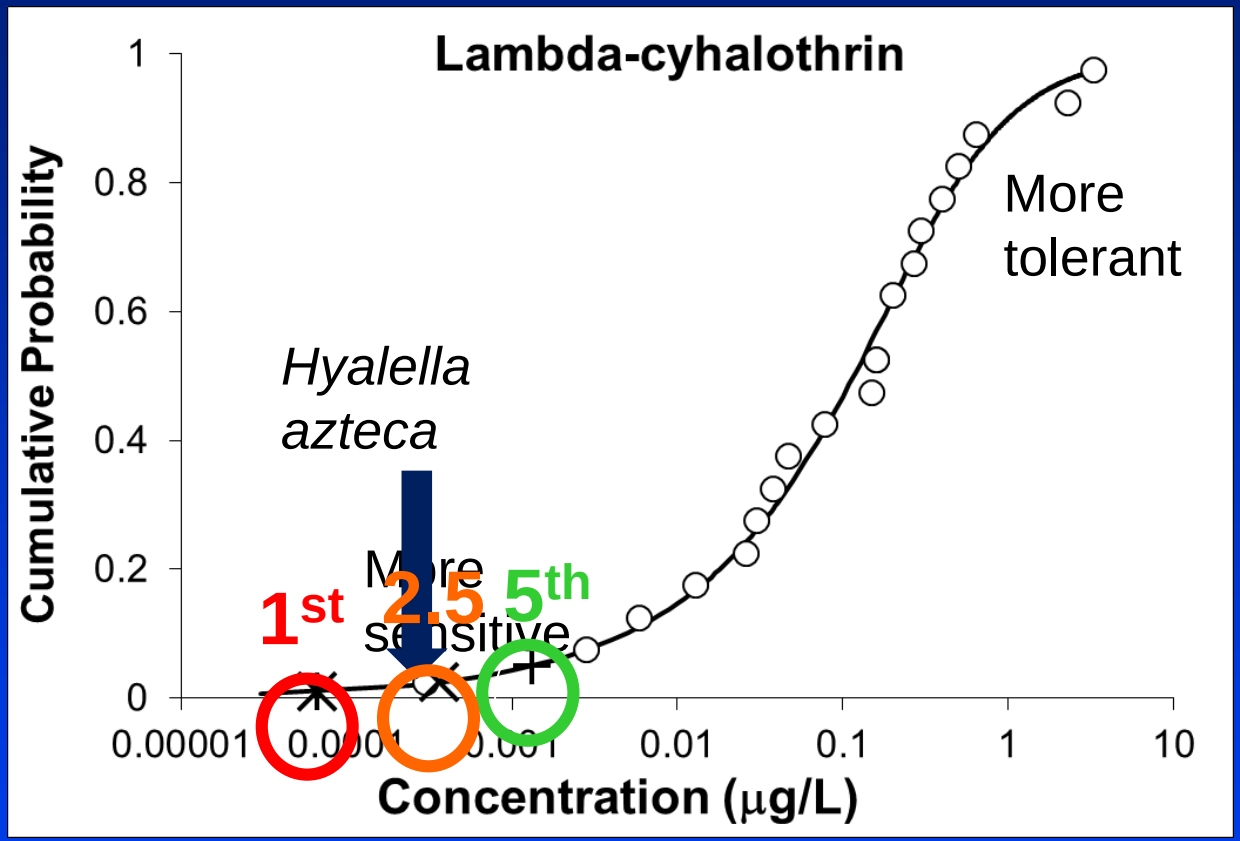
Management Practices

- Agricultural dischargers
  - Source control
  - Reduce or slow runoff
  - Reduce/capture sediments
- Urban dischargers
  - Education and outreach
  - Integrated pest management
  - No known technologies for wastewater
  - Coordination with regulators of pesticide use

Addressing Impaired Waters

- 303(d) listings
  - 14 water bodies
    - 9 urban
    - 5 agricultural
- Aquatic life beneficial uses impaired
  - Sediment toxicity
  - Water column exceedances

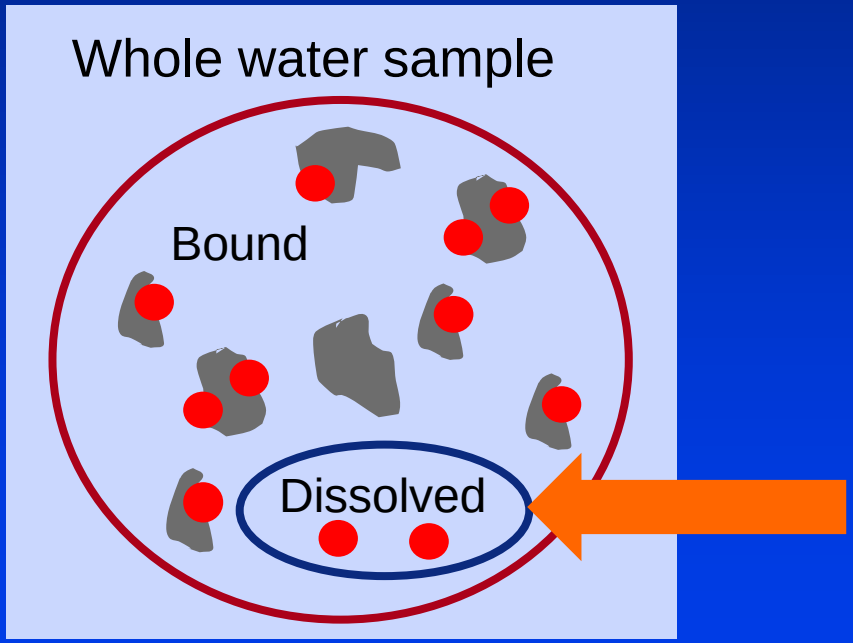
Species **Sensitivity Distribution**



Concentration Goals

- Technical Considerations
  Reduced bioavailability due to pyrethroids binding

Bioavailability: bound pyrethroids have a smaller toxic effects than freely dissolved pyrethroids



Concentration Goals

- Technical Considerations
  2. Reduced bioavailability due to pyrethroids binding

  – Account for bioavailability via an equation and monitoring data

  – Meeting freely dissolved concentration goals should also resolve sediment toxicity

Concentration Goals

UCD Criteria	2.5 percentile		5th percentile		*Hyalella azteca* 96-hr LC50 (ng/L)
	Acute (ng/L)	Chronic (ng/L)	Acute (ng/L)	Chronic (ng/L)	
Bifenthrin	**0.3**	**0.05**	**0.8**	**0.1**	**0.5**
Cyfluthrin	**0.3**	**0.06**	**0.8**	**0.2**	**0.55**
Cypermethrin	**0.3**	**0.07**	**1**	**0.3**	**0.56**
Esfenvalerate	**0.7**	**0.1**	**2**	**0.3**	**0.85**
Lambda-cyhalothrin	**0.2**	**0.08**	**0.7**	**0.3**	**0.3**
Permethrin	--	--	**6**	**1**	**7**

Coordination with Agencies

- For urban dischargers to reduce pyrethroids below triggers, actions by DPR and USEPA may be needed
- Commitment for Board to coordinate with DPR and USEPA
- Basin Plan amendment would include:
  - Recommendations to the agencies from the Board
  - Encourage agencies and dischargers to coordinate